

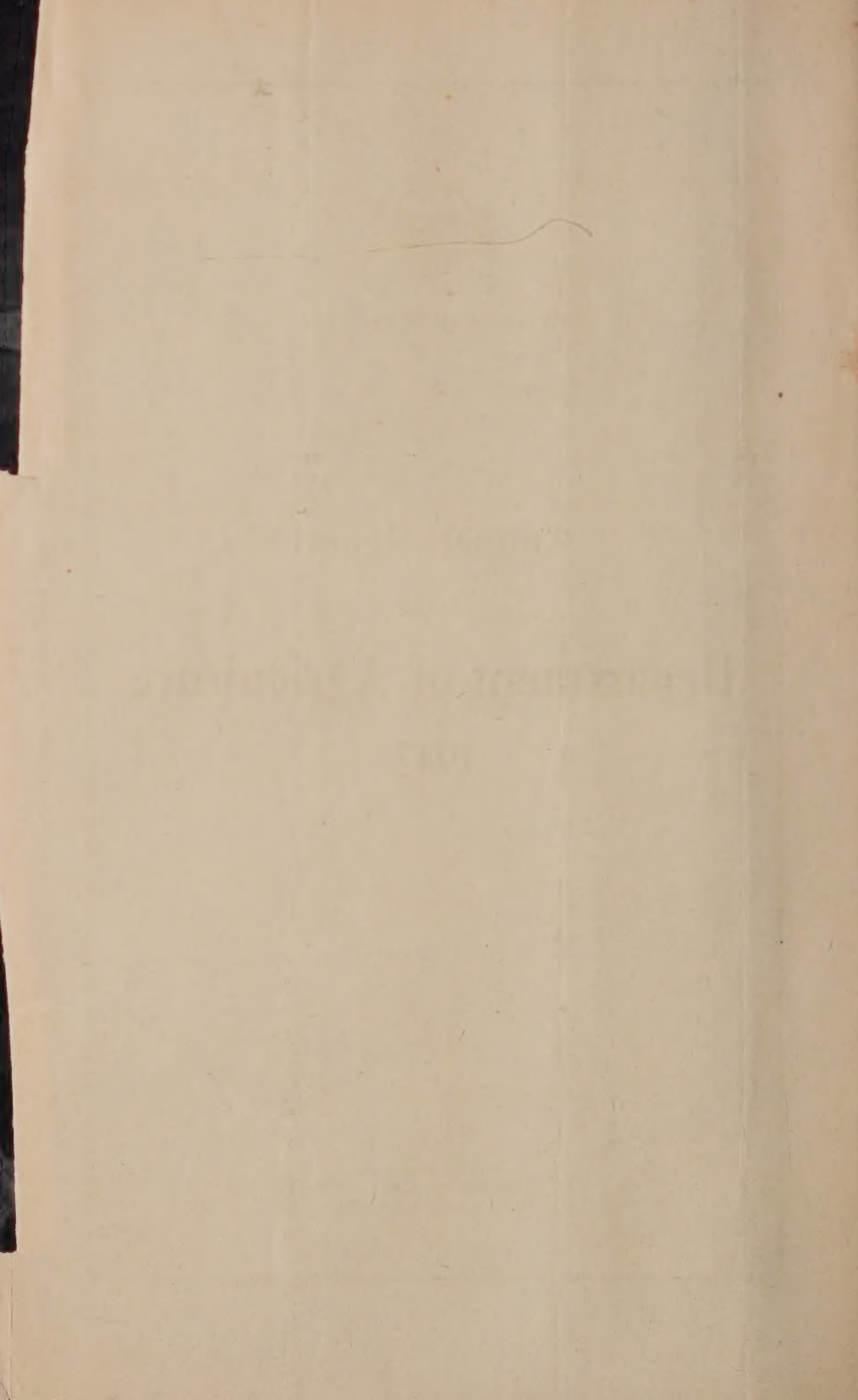


COLONY OF MAURITIUS

Annual Report
of the
Department of Agriculture
1942

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Annual Report of the Department of Agriculture for 1942

PART I

1. Meteorological conditions

The year was characterized by temperature higher than usual in summer, while the winter season was, in general; cooler than the average. Rainfall was in defect on the normal during the first six months of 1942 and normal or above normal during the rest of the year. The Island was again free from cyclone visitation.

2. Sugar production

The year's production of sugar exceeded all previous records. The total cane reaped approximated 2,802 thousand metric tons, and the extraction of sugar per cent. of cane 11.81. The total commercial sugar produced was 330.88 thousand metric tons, in excess by 2 per cent. on the figure for last year.

Of the total sugar produced 265.94 thousand metric tons consisted in raws; granulated whites were 64.40 thousand metric tons, and low sugars made up the balance.

3. Area under sugarcane

At the beginning of 1942 the area under cane was estimated at 152,910 acres of which 108,630 belonged to estates with or without factory.

Towards the middle of the year an Order was issued for the compulsory planting by all estates of 20 acres or more of a proportion of 20 per cent. of their cane lands in food crops; so that by the end of 1942 it was estimated that the area under cane had been decreased by some 20,000 acres.

4. Sugar market and disposal of the sugar crop

The total production was purchased by His Majesty's Government.

The total sugar exported during the 1941-42 year (1st August, 1941, to 31st July, 1942) was 310,559 metric tons, of which 310,030 went to Great Britain. The amount exported between 1st August, 1942, and 31st December, 1942, was 134,666 metric tons, of which 120,266 went to Great Britain. Local sugar consumption in 1941-42 amounted to 13,035 metric tons.

5. Labour and cost of living

Owing to labour shortage, factories could nowhere work on full load during the crushing season.

The figure for cost of living was indexed at 172 for the first quarter of 1942 and at 211 for the last, as against 100 pre-war.

6. Importation of agricultural machinery and fertilizers

In 1942 machinery to the value of Rs. 775,513 was imported, and tramway material to the value of Rs. 13,996.

The importation of farm tractors and ploughs amounted to Rs. 10,346. A total of 17,044,438 kilos of chemical fertilizers valued at Rs. 3,534,069 was imported in 1942.

7. Insect pests and plant diseases

Pests and diseases of the sugarcane remained normal during the year. On tobacco, Black Shank disease caused some damage in the early months of the season but was not reported on the same scale as in the previous year.

8. Tobacco

During the year 364,269 kilos of tobacco were produced consisting of—

		kilos
Flue cured	...	249,016
Air cured	...	115,253
Total	...	364,269

Rodrigues contribution to this total amounted to 2,854 kilos. The area under tobacco in 1942 amounted to 583 acres.

9. Fibre, Pineapple, Tea and Coconut

The exportation of fibre in 1942 was 135.6 metric tons as against 544 last year. The value of this year's export was Rs. 37,071.

Work is proceeding regularly in the bag factory, and some 1,300,000 bags of the 54 kg. size were produced in 1942. Experiments are in progress with regard to the production of a new type of paper-cloth bag.

The pineapple canning factory ceased operations during the year and its machinery was sold.

Progress was maintained in the tea industry. It is estimated that the total acreage at the end of 1942 has reached 1,278 acres while the total production approximated 295,000 pounds. Two more factories are in operation but they are not equipped to turn out tea of really superior quality.

In 1942 there was no export of copra and none of coconut oil. The clarified coconut oil produced by the Innova refinery has proved a considerable asset to the Colony, and the demand for the produce is in excess of the present production capacity of the refinery.

10. Alcohol

The total quantity of alcohol distilled for human consumption amounted to 1,102,198 litres, and the quantity distilled for industrial purposes to 3,759,660 litres.

The number of distilleries in operation in 1942 was 9.

The export of rum in 1942 amounted to 1,842,528 litres valued at Rs. 474,915.

11. Food Crops

An Order has been issued for the compulsory planting by all estates of 20 acres or more of a proportion of 20 per cent. in maize and other food crops such as sweet potatoes, manioc, taro, etc., according to locality. Irrespective of this proportion of 20 per cent., $2\frac{1}{2}$ per cent. of all estates of 20 acres and above have already been planted in manioc and sweet potatoes, so that the total increase in lands devoted to food production amounts to approximately 25,000 acres.

Maize drying kilns are in operation in various localities, while a central maize mill is being erected in one of the driest localities of the Island, some 3 miles from Port Louis.

12. Veterinary and Livestock

The sanitary condition of herds has been generally better than last year. No surra was in evidence and in spite of some difficulties the tuberculin campaign was maintained.

The total bovines on estates at the beginning of 1942 was 12,121 head as against 11,937 the year previous. Importation of cattle for food from Madagascar has been resumed on a restricted scale and, in 1942, 910 bullocks were received.

13. General

I wish to record my deep appreciation of the measure of assistance which I have unhesitatingly been accorded by the staff of the Department during the year.

The work of the Sugarcane Research Station and the various Divisions, has, as usual, been conducted in an atmosphere of close co-operation with the planting community of the Island. To the very large number of cultivators—members of all classes of the community—who have afforded opportunities for special investigation, I take this opportunity of presenting the gratitude of this Department.

G. E. BODKIN,

Director of Agriculture.

PART II

Report on the Sugarcane Research Station and Divisional Reports of the Department of Agriculture.

Sugarcane Research Station

The work of the Sugarcane Research Station has had to be very seriously curtailed during the year on account of war activities. The Botanist has been detached for duty with the Information Office throughout the year, the Geneticist has been seconded for duty with the Labour Department, and Mr. Feillafé, Field Assistant, was called up for service with the Colours. The officers who remained had extra duties, chiefly in connection with foodstuffs or fertilizer control.

The cane breeding work was continued as far as possible as in normal times, and an effort was made to keep a number of field experiments in operation.

The hiatus in the work is to be regretted, as there is no doubt that the work of the Sugarcane Research Station since its inception in 1930 has very materially helped towards the succession of record crops which the Colony has experienced during the past eight years, the record having been beaten on six occasions.

A short account of the restricted activities of the Station will be issued as a separate report.

N. CRAIG, *Officer in charge,*
Sugarcane Research Station.

Agricultural Division

1. Central Experimental Station, Réduit

Plantations of different varieties of sweet potatoes, manioc, groundnuts, yams, adlay, pigeon peas, rice, maize and other food plants were made in order to have fresh planting material available for distribution to the public. As a war measure, every possible encouragement and advice were given to increase the growing of food crops in the Colony. Cuttings of manioc and sweet potatoes were distributed free, a small charge was made for seeds and tubers of other food plants.

41,490 kilos of sugarcane, not required for propagation, were sent to Trianon estate.

Good yields of smooth cayenne pineapples were obtained. 4,533 kilos were sold to the Mauritius Canning Company and, after its liquidation, the fruits were distributed free to the Royal Navy and the Mercantile Marine.

The carob trees, *Ceratonia Siliqua* Linn., planted in 1935 bore a fair crop of pods which were sent to the Curepipe Government Dairy and much appreciated by the cows, as the pods make an excellent cattle food.

Good results were obtained from the coffee plantation, seeds of the best yielding species were collected and propagated.

2. Barkly Experimental Station, Beau Bassin

As in past years, this station was often visited by many persons who came to buy plants, to obtain information on agricultural questions or to observe the work in progress.

The revenue of the sale of plants amounted to Rs. 2,163.26.

The seedlings of *Cinchona succirubra* raised last year from seeds collected in the "Trou aux Cerfs" grew well. 30 seedlings were planted there and 120 on Crown land, "Piat and de Billot," at Curepipe.

The experimental plantation of *Hydnocarpus Wightiana*, Blume, Chaulmoogra, made in 1934 fruited abundantly, the seeds were collected and forwarded to the Chemical Division for oil extraction. It has now been proved that this tree is resistant to cyclones, grows well in different localities where it has been tried and that it would be possible to extend its cultivation so as to obtain sufficient chaulmoogra oil for local use. This oil is used for the treatment of leprosy.

Plantations of various food crops were raised to supply planting material to allotments, school gardens and the public.

During the fruiting season, consignments of fruits were distributed free to crews of ships calling here.

Experiments are now in progress in order to find out whether it would be possible to produce locally seeds of certain varieties of temperate vegetables, which in the past were imported from Europe and are now scarce or unobtainable in the Colony.

Trees of *Triplaris americana* flowered for the first time in Mauritius. The seeds were received a few years ago from the Panama Canal Zone where the trees are planted along roadsides. Seeds were collected and many seedlings obtained; it will therefore be possible to distribute this handsome flowering tree in the near future.

3. Royal Botanical Gardens, Pamplemousses

The gardens were kept in good condition throughout the year; many visits were paid by local residents and by persons calling in the Colony for a short time.

The collection of water lilies and the *Victoria regia* were much admired by the visitors.

Propagation of fruit trees and other economic plants continue to receive careful attention.

During the year, 261 litchis layers, 220 mango grafts, 26 bread fruit plants and a large number of economic and ornamental plants were supplied to out-stations.

25,670 kilos of sugarcane not required for propagation were sold to "Belle Vue" estate.

Plantations of different food plants were extended in order to increase the supply of planting material.

4. Abercrombie Nursery

A large number of plants were raised in the nursery for sale to the public, etc. The revenue derived from sales amounted to Rs. 1,362.03 as compared with Rs. 768.40 for 1941 and Rs. 829.97 for 1940.

5. Government House Grounds

The grounds at Le Réduit and Port Louis were maintained in excellent order.

6. Food Settlements : St. Martin, La Ferme and St. Thomas

These three settlements of a total of about 84 acres are leased to 70 shareholders of St. Martin Co-operative Credit Society.

Food crops were grown with success under the close control of the Assistant Agricultural Officer.

7. School Gardens

Regular visits were paid to the 31 registered school gardens by officers of the Agricultural Division to give advice and supervise the work done.

No prizes were awarded this year, as a war economy.

8. Allotments

The total number of allottees at the end of the year was 156, an increase of 11 on the past 12 months.

A new allotment of 12 acres was started in October at "Moona" in the Black River district. Six persons were each given a two-acre plot which they soon planted with an interesting collection of food plants.

Arrangements have been made to start another allotment of 30 acres on Crown land "Piat and de Billot," at Curepipe, where it will be possible to settle 24 persons.

The position of the various allotments was on the whole satisfactory. It was found necessary to evict a few lazy allottees, and replace them by others on the waiting list.

9. Visits to estates and planters

The Senior Agricultural Officer paid 221 visits to estates and planters, many of these visits were chiefly connected with the campaign for the growth of food crops.

The three Agricultural Instructors were in close touch with small planters in every part of the Island and gave them all possible advice and assistance.

10. Tea

There has recently been a considerable increase in the area under tea. From enquiries made, it was ascertained that there are at present about 1,278 acres under tea cultivation. It is estimated that, when in full bearing, these plantations ought to produce sufficient tea to meet local requirements.

11. Pineapples

This industry has received a serious set back on account of the closing of the pineapple canning factory ; it is hoped that after the war, when conditions will return to normal, another company will be formed and a new life given to a promising industry. The present owners of pineapple plantations are now selling their fruits locally and making good profits.

12. Cinchona

A well sheltered plot was selected at Curepipe on Crown land "Piat and de Billot," for an experimental Cinchona plantation. As a start, 120 seedlings of *Cinchona succirubra* were planted there late in December. 30 plants were also established in the existing plantation in the "Trou aux Cerfs."

13. Higher Agricultural Education

The Agronomist who was lecturing to the Agricultural College Students in Agricultural Geology and Principles of Tropical Agriculture, left for Rodrigues on military service in October. In his absence the lectures were delivered by Agricultural Instructor Rochecouste. The Senior Agricultural Officer lectured to 3rd-year Students on Tropical Crops.

The Agricultural Officer was in charge of the practical field demonstrations.

14. Food Crop Plantations

After land had been cleared by the Labour Department at Terre Rouge and Richelieu, the Division was responsible for the supervision of planting by contractors of manioc at the two above-mentioned places. The planting started late in December. It is hoped to plant about 60 acres at Richelieu and two hundred acres or more at Terre Rouge; all will depend on the amount of planting material available.

15. General

The Senior Agricultural Officer continued to supervise the planting of food crops in the Grand Port district.

The Agronomist is still on active service and is now stationed in Rodrigues.

The Agricultural Officer, besides his normal duties, assists the Veterinary Division at the "Palmar" Cattle Station. He also helps the Malaria Control Officer in sanitation work to get rid of mosquito breeding places.

The Assistant Agricultural Officer and the Agricultural Instructors were appointed Assistant Regional Food Production Officers for different districts.

Overseer I. Beeputh who was in charge of Abercrombie Nursery died on the 26th June.

Mr. S. Thumba Naik was appointed as Assistant Overseer on probation on the 26th August.

C. A. O'CONNOR,

Senior Agricultural Officer.

Co-operative Credit Societies Division

There were no changes in the permanent personnel of the administration. But the marked expansion in the movement rendered it essential for the Government to consider the question of further expenditure of State funds for the control of the existing organisations.

2. Following the registration of no less than six new Societies during the year, the number of Societies in active operation as on the 31st December, 1942, was 65 in Mauritius and 11 in Rodrigues as compared with 59 and 11 respectively last year.

3. The continuance of the policy whereby members are allowed to increase their shareholdings by deduction from loans granted to them has been found to be satisfactory for the following reasons—

(a) developing habits of thrift among a class of people who are more or less illiterate and lacking in forethought ;

(b) strengthening the financial stability of the societies ;

(c) protecting the unlimited liability and assisting in its ultimate abolition by hastening the collection of sufficient owned funds to meet the legitimate needs of members.

On the other hand, in a tropical country where cyclonic visitations, droughts and floods occur, it is of the utmost importance that the Societies should be encouraged to accumulate funds over and above their members' normal requirements for one year. With this surplus the Societies will be able to finance their members' needs for repairing their temporary losses resulting from the advent of any of the aforesaid phenomena, without resorting to borrowed capital.

Advances from State funds totalling Rs. 10,800 were made to 6 Societies ; repayments amounting to Rs. 6,080 were effected to the Treasury as instalments due. The aggregate amount of the advances due to Government as on the 31st December, 1942, was Rs. 125,500 and was held by 35 Societies operating in Mauritius and 10 in Rodrigues.

4. In conformity with the existing policy, the Societies have confined themselves to short term loans almost exclusively for agricultural purposes. Whilst credit is usually the initial function of the Co-operative Credit Society, it may tackle many other co-operative activities—co-operative purchase, co-operative marketing, etc. With the facility accorded by Ordinance No. 47 of 1941 which controls cane transactions, the Societies are now also devoting increasing attention to the co-operative sale of their members' produce (sugar-cane and tobacco). The result so far achieved in this direction has, in no uncertain manner—

(i) enabled the mass of the small cultivators enlisted in the campaign to realise that the only rational way that development is possible among them is through co-operative methods ; and that production and marketing are much more susceptible to improvement through co-operation ;

(ii) apart from easing the duties of the managing committees in maintaining a definitely satisfactory standard of recovery of debts due by members, strengthened the control exercised by such committees upon the borrowings of the members.

5. So far 43 Societies have invested their surplus funds amounting Rs 12,47½ in the purchase of War Savings Certificates.

6. With a view to facilitating reference and to rendering the regulations governing the working of the Societies consistent with the provisions of the Co-operative Credit Societies (Consolidation) Ordinance No. 49 of 1941, a draft to consolidate the regulations has been produced and is now under consideration by Government.

7. The work of the Societies forms the subject of a special report issued after the close of the financial year. The details of the working thereof for the financial year ended 30th June, 1942, are shown in such report.

M. BURRENCHORAY,
Joint Registrar, Co-operative Credit Societies.

Division of Plant Pathology

1. Incidence of Cane Diseases

No serious outbreak of cane diseases was recorded during the year. Further inspections of cane fields in different localities of the Island confirmed previous observations regarding the reaction of M.134-32 to red rot, namely that it is a commercially resistant variety and *grande saison* canes are more likely to suffer from the disease (c.f. 1941 Report). At Riche-en-Eau S.E. however a more severe outbreak of the disease occurred, and caused a reduction in yield estimated to approximately 20 per cent.

It also appears that M.72-31 is more susceptible to red rot than was originally believed.

2. Research Work on Sugarcane Diseases

A.—LEAF SCALD (*Bacterium albidineans* ASHBY)

Several experiments were started during the year in an attempt to determine the mode of infection of that disease.

B.—SMUT (*Ustilago scitamineae* (RAB.) Syd.)

Interesting results were obtained from an experiment at Labourdonnais S.E. on the relation of types of cuttings to incidence of the disease. The variety used was B.H.10-12 and the experiment consisted of 60 plots of 4 holes each planted alternately with cuttings from an infected field in a locality where smut is common (Forbach), and cuttings from Réduit where the disease is seldom met with. The trial was planted in July, 1941, and results obtained are summarised in the following table—

	Number of infected stools								
	1941			1942					Total
	October	Nov.	Dec.	Jan.	Feb.	March	April	May	
Cuttings from infected field.	1	16	3	1	—	1	5	1	28
Cuttings from healthy field	—	—	—	—	—	3	—	2	5

These figures indicate that cuttings from an infected field gave rise to a larger number of diseased stools, and the fact that the disease appeared earlier tends to show that the cuttings were already infected. The development of diseased stools later in the year from both "treatments" suggests secondary infection.

A cytological investigation on the distribution of the organism in the shoot system of the cane plant was also started.

3. Miscellaneous Diseases

A.—ROOT DISEASE OF CITRUS

An investigation on a disease of *Citrus* spp. which was believed some time ago to be a deficiency disease (vide Annual Reports 1938, 1939) was resumed during the year. The disease is characterized by a more or less acute chlorosis of the foliage followed by a die back of the twigs and ultimate death of the tree.

Sixteen plants of varying ages were carefully uprooted and studied. It was found that in all cases over 50 per cent. of the roots were dead or dying. Out of 64 cultures of portions of roots on Wilbrink's agar, fifty tubes yielded species of *Fusarium*. These were sorted out in 9 groups and inoculated into Bigarade (*Citrus aurantium* var. *bigaradia*) seedlings. All the inoculations were negative.

B.—LEAF DISEASE OF SISAL (*Agave sisalana* PERR.)

A leaf blight and spotting, of sisal was reported from Albion estate (Black River) in September. It is presumed that the disease started some months before it was detected. Patches of yellowish white discoloured tissue were present on the leaves, enclosing circular areas of various size of normal green tissue. The diseased portions eventually dry out into much shrunken chocolate brown lesions.

The affection occurred suddenly in several fields and was subsequently observed at Grand Bay in the North of the Island. Climatic conditions may be the cause of the disease.

C.—OTHER PLANT DISEASES.

Work on other plant diseases included the control of *Wickstroemia indica* (Herbe tourterelle) by *Phytophthora parasitica* Dast., wilt of vanilla, blight of aster, wilt of maize, internal rot of sweet potato and yam, root rot of *Anona squamosa*, leaf spot of ginger, soft rot of *petsai* (*Brassica chinensis*), collar rot of onion and dahlia.

4. General

The work of the Division was considerably curtailed and many experiments could not be concluded on account of special work which the staff had to perform in connection with the Food Production Scheme: the Plant Pathologist was attached in September to Mr. G. P. Langlois for food production on estates cultivating over 200 acres canes, while the Assistant Plant Pathologist and the Plant Inspector were appointed Regional Food Production Officer and Assistant Regional Food Production Officer respectively for Pamplemousses and Rivière du Rempart Districts.

P. O. WIEHE,

Plant Pathologist.

Sugar Technological Division

1. Visits to Factories, Investigations, etc.

Thirty-five sugar factories were visited by the Sugar Technologist and his Assistant during the year as well as the nine distilleries producing rectified spirits. Investigations were carried out in several factories particularly in connection with the loss of sugar incurred through fermentation at the mills. The results obtained will form the subject of a separate publication.

In one factory showing a low overall recovery, the causes of the inefficiency were enquired into and advice was given accordingly.

Recommendations were made to another factory for the modification of its evaporator plant so as to increase its capacity, and to a third factory for the modification of the juice plant with a view to using steam more economically.

Apart from these cases, advice was given when sought for and routine analytical work carried out for the factories.

At the beginning of the crop a number of sugar bags were returned to a factory by the railway authorities as the bags had become damp at places during transport in wagons. On investigation it was found that the cause of the damage was due to the fact that the sugar had been bagged hot and loaded immediately in closed wagons. The bags were made of aloë fibre which have a loose texture and a low hygroscopicity, compared with jute.

2. Investigations on the production and use of Power Alcohol

Investigations on the production and use of power alcohol were carried out with the co-operation of the Chemist of the Department of Agriculture, and recommendations were made to Government for fixing by law the maximum amount of impurities allowed in alcohol to be used for power purposes.

Three new distilleries were erected during the year and considerable progress has been made in respect of efficiency of fermentation.

3. Production of Sugar Bags

Large scale experiments are being carried out at the Government Sack Factory with a view to producing paper paste from bagasse to be used in conjunction with aloë fibre for the production of sugar bags.

4. Controle Mutuel and Factory Results

Thirty-four factories contributed to the fortnightly returns which were distributed as usual.

The sucrose content of cane averaged 13.73 as compared with 13.27 and 12.71 in 1941 and 1940 respectively. The quality of the juice was satisfactory. The average purity of the mixed juice was 85.9 as compared with 85.3 and 85.3 in 1941 and 1940 respectively.

5. Educational

The usual lectures and practical demonstrations were delivered by the Sugar Technologist and Assistant Sugar Technologist to students of the Agricultural College, who were also taken on visits to sugar factories.

6. General

Central Board.—The technical work and other duties relative to the administrative work of the Central Board has been discharged by the Sugar Technologist and Assistant Sugar Technologist with the help of the other officers of the Board.

It may here be mentioned that a new method of determining the sucrose content of cane was elaborated and applied with satisfactory results on planters' canes during the 1942 crop. The method has brought a considerable saving in time and money both to Government and millers.

The Sugar Technologist acted as technical adviser to the Mauritius Supplies Control Board and the Assistant Sugar Technologist was appointed in December also to act in the same capacity.

The Sugar Technologist acted as secretary of the committee appointed to deal with the question of compensation to be given to planters in respect of lands diverted to foodstuffs.

The following articles were published in the *Revue Agricole*

"Determination of the Sucrose content of cane for planters' payment." R. Avice and S. Staub.

"Purification of Fusel Oil." S. Staub.

7. Staff

The Sugar Technologist, Mr. L. Baissac, having reached the age limit, retired from the service on the 11th May, 1942. Mr. R. Avice, the Assistant Sugar Technologist, who had been seconded for duty as Registrar, Central Board, was appointed Sugar Technologist and Registrar, Central Board.

Mr. S. Staub was appointed Assistant Sugar Technologist and Assistant Registrar, Central Board.

A new post of Scientific Assistant was created.

R. AVICE,

Sugar Technologist and Registrar, Central Board.

Division of Entomology

1. Staff

The Entomologist who had held the post of Deputy Chief Censor since the beginning of the war was appointed as Malaria Control Officer in July, 1942, and subsequently incorporated in the R.A.M.C. with the rank of Major. The Assistant Entomologist still remained in charge of the Division, though he was partly released from his duty and placed in charge of the Entomological Section in the anti-malaria campaign. The Scientific Assistant and the Chief Phytalus Officer devoted a large part of their time as Inspectors in the food production scheme. The Acting 2nd Phytalus Officer was called to military duties in June and his post remained unfilled. To cope with the extreme shortage of staff, Misses A. M. and L. Guillemin were employed, as from the 1st April, as extra hands in the Division. The Laboratory Attendant, M. Paniapen, was also detailed to work, whole time, as Field Agent in the Anti-malaria Scheme.

2. Pests of Sugarcane

A.—*Phytalus smithi* ARROW

A survey of *Phytalus* larvae was done on 37 estates in the Island. The results are very much the same as in previous years, viz., that the insect continues to progress in its invasion of the periphery of the original infested centres. It is not common to observe heavy infestation returning once an estate is free from the pest, but where this is observed it is generally associated with places of high rainfall combined with high temperature. *Campsomoris phalerata* Sauss. continues to be abundant locally, in places where the estates have followed the advice of the Division in planting food plants in the cane fields, but the exact role played by the parasites is difficult to estimate. It does not prevent heavy infestation from occurring, but it may modify its severity and duration. A new centre of infestation was reported at Bel Ombre estate. As most of the staff was engaged on war duties, no systematic survey and distribution of parasites could be done. No new recovery of the various introduced parasites and predators were recorded during the year.

B.—SPOTTED BORER: *Proceras sacchariphagus* BOJER

During the year under review, the experiment on the mass liberation of *Trichogramma australicum* Gir. was continued in three localities, viz. Belle Vue Harel, Beau-Vallon and Beau Champ.

The following table shows the total number of parasites liberated during the course of the experiment in 1941-1942—

Locality	Variety under experiment and acreage	Total number of parasites liberated 1941-42	Mean number of parasites liberated per month	Mean number of parasites liberated per acre	Mean number of parasites liberated per acre per month
Beau Vallon	... B.H.10/12 and 134/32 virgins (40 acres)	437,000	36,417	10,925	910
Beau Champ	... B.H.10/12 virgins (10 acres)	139,000	11,583	13,900	1,158
Belle Vue	... B.H.10/12 and 134/32 ratoons (15 acres)	324,000	23,148	21,600	1,548

The total number of parasites liberated during the year 1942 amounted to 308,000. A total of 1,737,900 eggs of *Corcyra* was obtained, out of which 352,000 parasites were bred and of these 308,000 liberated. The percentage of *Corcyra* eggs parasitised in the laboratory amounted to 55 per cent. during the year, as compared to 80 per cent. for last year; a possible explanation may be a drop in the vitality of the strain of *Trichogramma australicum* Gir., but a careful watch is being kept re this possibility. The sex ratio of *Corcyra* during the year was 12.4 per cent. female individuals as compared to 29 per cent. female individuals in 1941. The mean number of eggs obtained per female was 136.3 against 88 last year.

The following table shows the results of the borer survey in the fields under experiment—

Locality	Cane variety	Average stalk infestation		Average joint infestation	
		1940	1942	1940	1942
Belle Vue	... 131/32 and B.H.10/12 (ratoons)	77.0	79.0	15.0	18.4
Beau Vallon	... B.H.10/12 (virgins)	94.2	83.4	22.8	17.4
Beau Champ	... B.H.10/12 (virgins)	89.2	22.7	19.9	1.1

On comparing, from the above table, the average percentage of stalk and joint infestation, for the year 1940 preceding the experiment and the year 1942 during the experiment, it would appear that the mass liberation of *Trichogramma australicum* Gm. at Belle Vue Harel and Beau Vallon had but little effect on the borer infestation. It was only at Beau Champ that a marked decrease in infestation was noticed. The general impression which originates from these experiments is that the results obtained are very erratic. No conclusion can be drawn therefrom. The above variations may probably be due to different climatic conditions, soil types and other environmental factors. The maximum percentage of eggs parasitised in the various fields under experiment is as follows: Belle Vue 19.8 per cent.; Beau Vallon 1.1 per cent.; and Beau Champ nil.

It is interesting to note that though the percentage of eggs parasitised was higher at Belle Vue than in the two other localities, yet the damage done by borers has not been reduced. It was also noticed that in cane fields where no liberations had been done and where no self-colonisation by wind can be suspected to have taken place due to mass liberation, the percentage of eggs parasitised in such fields amounted to over 50 per cent. during the month of May. The following table shows the results of the collection of egg batches, at Belle Vue, together with the percentage parasitism for the years 1941-42.

Months	No. of egg batches collected		Percentage of batches parasitised	
	1941	1942	1941	1942
January	...	614	-	4.0
February	...	952	-	4.0
March	...	1,014	nil	13.0
April	...	1,258	1.39	36.0
May	...	2,686	4.28	23.4
June	...	1,884	3.06	10.2
July	...	1,676	3.20	6.0
August	...	3,104	1.22	12.0
September	...	1,080	0.34	16.1
October	...	1,086	0.78	0
November	...	823	1.74	0
December	...	501	1.26	0.2

The total number of egg batches collected at Belle Vue during the years 1941 and 1942 amounted to 5,909 and 15,676 respectively. If the number of eggs per batch is reckoned to 23.4 (mean of 138 batches examined) it would result that the number of borer eggs collected and examined during the years 1941 and 1942 amounted to 138,271 and 366,865 respectively. The mean

percentage of eggs parasitised per batch was found to be 98. On further enumeration of the above table it will be found that the months of April to September are the periods where the parasitism is at a very high level; these periods occurring during the dry season of the year in this locality. There appears to be great variations in the amount of eggs collected in one and the same locality during two subsequent years; such variations may be due to various factors, training of collectors, abundance of eggs according to months, rainfall, etc. The same variations occur in the mean percentage of eggs parasitised, viz. 4.81 in 1941 against 40.32 in 1942. The maximum percentage of batches parasitised in 1942 was 55.1 and the minimum 2.7, this peak period being in May.

The imported Ceylon parasite *Xanthopimpla stemmator* F. was rare during the whole year, no liberation of this parasite could be made in centres of high infestation. It is important to record here that the final name for the local spotted beetle mentioned in previous reports as *Diatraea mauraella* Wlk. (*venosata* Wlk., *striatilis* Sn.) is now known as *Proceras acanaphagus* Bojer.

C.—SCALE INSECT (*Aulacaspis tegalensis* ZEHNT.)

No great extension of this scale in the Island was recorded during the year. Full details on the bionomics of this scale is given in a paper prepared by the Assistant Entomologist, and expected to be soon published in the *Bulletin of Entomological Research*.

Methods of control recommended by the Division and which have been found effective are—

(1) The stripping of trash from the standing cane at the very beginning of the attack, i.e., in the period from December to February. This exposes the insects to attack by numerous parasites and predators.

(2) The liberation of *Chilocorus politus* Muls., *C. nigritus* Muls., *Cybocephalus* sp., coccinellids which can easily be bred *en masse* in the infested areas throughout the season of attack.

(3) The elimination of cane varieties such as P.O.J. 2878 in which the trash is closely adherent to the stem, and which therefore offer shelter to the scales.

3. Pests of Stored Products

The necessity, which so frequently occurs in war time of prolonged storage of large quantities of locally produced grains, raises grave entomological problems which must be anticipated and dealt with energetically whenever they arise in actual practice. In Mauritius the problem is one of the replacement of imported rice by home-grown maize.

During the year, numerous experiments were carried out on the various methods advocated for the storage of maize seeds and maize grains. It was found that maize seeds can be safely stored *only* in drums or petrol tins. The maize seeds should before storage have a moisture content of 10–11 per cent. Every two months the containers should be opened and the seeds exposed to the sun during one day. This method has the advantage of keeping the germination to a high level, as compared to seeds kept in sealed containers, i.e., without aeration. Exhaustive experiments were carried out on the moisture content of maize grains in relation to various relative humidities. Full details on these two above-mentioned experiments were published in the *Revue Agricole*, Vol. 21, p. 122 (1942), and Vol. 22, p. 5 (1943).

4. Miscellaneous Pests

(a) FRUIT FLIES.

As a result of a preliminary survey of the various fruit flies (Trypetidae) in the Island the following insects were collected and submitted for favour of identification to Mr. H. K. Munro (Collection Entomologist, Department of Agriculture, South Africa).

1. *Strumeta zonalis* Saund. (= *Chaetodactylus zonalis* Saund.) ex Terminalia catapa fruits.
2. *Strumeta cucurbita* Coq. = (*Dacus cucurbita* Coq.) ex various cucurbitaceous fruits.
3. *Dacus* (*Didacus*) *ciliatus* Lw. ex cucurbitaceous fruits.
4. *Dacus emmerezii* Bez. ex cucurbitaceous fruits.
5. *Ceralitis capitata* Wied. ex peach fruits.
6. *Ceralitis calceoli* Guer. ex various fruits.

Of the above 1 and 6 are indigenous. 3 and 5 are African species; 4 and 2 are oriental species. Further searches are being made and the incidence and economics of these flies are under study.

This formidable list of fruit flies is a possible result of the greatly increased import of fresh fruits and vegetables into the Colony during the past 10 years, and demonstrates the necessity for a full time Plant Quarantine Officer with a staff adequate to cope with such a volume of imports.

(b) FOOD CROP PESTS.

With the gradual increase in plantation of the various food crops in the Island, viz., sweet potato, maize and manioc, several new entomological problems have arisen. In some localities maize plantations were found infested with the rice seedling moth: *Crambus malacellus* Dup., cutworms species (*Agrotis*, *Prodenia* and *Spodoptera*), as well as red ants *Solenopsis geminata* F. were found attacking seedlings in very many localities. Snails (*Achatina panthera* Fer. and *Achatina fulica* Fer.) were also recorded as very harmful to food crops. Measures of control whenever possible were recommended to all parties concerned, and warnings have been given of the dangers inherent of replacing one monocultural system by another.

(c) FLIES AND MOSQUITOES.

A petroleum-pyrethrum fly spray was prepared by the Division and placed on the market under the name of *Pyex*. The cheap price as well as the effectiveness of this insecticide made it readily appreciated by the public. It is expected, in the near future, to place a larger stock on the local market.

5. General

Lectures and practical demonstrations in Entomology and Zoology were delivered to students of the Agricultural College by the Assistant Entomologist and Mr. J. Vinson (partly) and by the Scientific Assistant, Mr. R. Mamet.

A. MOUTIA,
Assistant Entomologist.

Chemical Division

Investigation Work

1. Aloe Fibre

The main line of research during the year under review was the investigation connected with

- (a) the colouring of the aloe fibre,
- (b) the improvement of the retting process of aloe leaves.

This work was partly performed in the chemical laboratory and partly at La Chaumière estate: a vat allowing the treatment of one ton of green fibre was erected on the estate for this purpose.

The problem of colouring the fibre was first tackled, and experiments were carried out using the following colouring agents—

- (a) scrap iron,
- (b) red earth,
- (c) potassium permanganate,

such experiments were performed under different conditions, time, various concentrations, etc. The first two experiments were not successful, on the other hand the colouration obtained with KMnO_4 solution was quite satisfactory, but the process was too expensive at the present market price of this chemical.

Further investigations are contemplated involving the use of different wood tinctures locally available, the most promising one seems to be bois noir (*Albizia Lebbek*).

As for the retting process the first attempt was to use washing soda as a substitute of soap, it is more economical and results were encouraging. Further research has shown the influence of the reaction of the medium on the decomposing anaerobic bacilli and experiments are in hand to ascertain—

- (a) the pH at which maximum results might be expected,
- (b) the measure to be adopted to control industrially the said pH

Experiments are also in hand to improve the nutrient value of the decomposing media in order to increase the efficiency of the anaerobic bacilli.

2. Hydnocarpus Oil

Very encouraging results were obtained from the hydnocarpus oil supplied to the Leper Hospital, the Medical Superintendent in charge reported as follows: "The oil is non-irritating, the patients who have been put under treatment with the local oil have done much better than those who have been treated with the oil received from abroad."

The oil supplied derived from the seeds of *Hydnocarpus Wightiana* Blum. and was extracted by a powerful laboratory mill.

Steps are taken to supply the local requirement periodically.

3. Herbe Condé (*Cordia Interrupta*).

This plant is now widely distributed over the whole Island and has become a pest, especially in districts where aloe plants are cultivated.

In order to determine the food value of the berries which are abundant during the season the following analyses were performed. The berries consist of 71 per cent. by weight of skin and pulp and 29 per cent. of seeds, the latter were analysed separately.

When expressed on the fresh ripe state the analytical composition is—

	Water	Ash	Fibre	Fat	Protein	Carbo- hydrates
Berry (whole) ...	70.40	1.60	8.97	5.30	8.87	10.86
Seeds ...	87.10	1.67	24.90	2.95	7.81	25.57

when expressed on the dry matter:

Berry (whole) ...	...	5.42*	30.30	17.90	11.50	24.88
Seeds ...	...	2.67†	39.60	4.69	12.50	40.54

4. Drugs

A sample of *Cinchona succubra* bark was forwarded by the Agricultural Division from plants raised at Trou aux Cerfs. The total alkaloid present amounts to 5.14 per cent. with only 1.00 per cent. quinine.

A sample of *Ephedra Sinica*, grown at Barkly Experimental Station, was also forwarded for examination; only 0.08 per cent. of total alkaloid was detected.

5. Pastures

Experiments at Palmar Experimental Station on the seasonal variations of pure species of grasses receiving different fertilizers treatment and those performed at Government Dairy at Curepipe on the effect of fertilizers on two species of grasses were still carried out but unfortunately the officer in charge of these analyses was mobilised for military service in November.

6. Tobacco

Progeny plots were planted with the progeny of plants selected in the previous year but climatic conditions during the season were extremely unfavourable, drought and warmth affected adversely the plants which suffered severely.

7. Milk

The analysis of samples of milk from the Government Dairy was performed as usual in the months of February, April, July and October respectively. The average figures given below are slightly lower than those recorded in previous years.

The averages for both morning and evening milk are given below—

	Morning milk	Evening milk
Fat ...	3.0%	4.0%
Total solids ...	11.9%	13.1%

The variations shown by individual samples are as follows—

	Morning milk	Evening milk
Fat ...	2.6% to 4.2%	3.1% to 4.9%
Total solids ...	10.9% to 12.9%	11.6% to 13.8%

* containing 0.80% CaO and 0.72% P_2O_5 respectively.

† containing 0.55% CaO and 0.75% P_2O_5 respectively.

8. Routine analysis

56 samples were received involving 150 determinations. The research work involved the analyses of 264 samples, 672 estimations being carried out.

9. Miscellaneous

In the middle of January Mr. L. A. Suzor, a former student of the Agricultural College, was appointed as Pasture Analyst in the room of Mr. F. Durocher-Yvon transferred to the Royal College. Mr. Suzor was called up for military service with the M.T.F. as from the 3rd November. I wish to record my appreciation of the efficiency of this young officer during his short stay in my division.

The services of Mr. E. Haddon were secured in February for the research undertaken in connection with the aloë fibre. At the end of July this officer temporarily left the division for chemical control on a sugar estate but resumed duty on the 1st of October.

R. LINCOLN,
Chemist.

Tobacco Research Station

During the year under review unfavourable conditions combined with reduction in staff and pressure of work in the other directions necessitated a reduction in the experimental programme outlined for the year. All work in connection with rotation crops was abandoned as was also disease resistance trials in connection with tobacco. Much progress however was achieved in breeding work and seed production in connection with tobacco, and hereunder a brief summary of the work is given.

Climatic conditions

Climatic conditions were generally unfavourable throughout the year, warm, dry conditions prevailing. The meteorological recordings for the year were—

Temperature Fah.							
Month	Rainfall Inches	Mean		Absolute		Relative Humidity	
		Max.	Min.	Highest	Lowest	Mean%	
January ...	1.78 ...	85 ...	78 ...	90 ...	71 ...	60.6	
February ...	3.30 ...	87 ...	78 ...	93 ...	72 ...	54.3	
March ...	5.49 ...	86 ...	77 ...	91 ...	72 ...	64.2	
April ...	3.28 ...	81 ...	77 ...	88 ...	68 ...	67.3	
May ...	0.26 ...	79 ...	72 ...	90 ...	60 ...	66.6	
June ...	0.12 ...	77 ...	68 ...	82 ...	58 ...	61.9	
July ...	0.31 ...	75 ...	67 ...	82 ...	59 ...	74.0	
August ...	0.62 ...	76 ...	67 ...	82 ...	58 ...	61.3	
September...	0.52 ...	77 ...	68 ...	84 ...	60 ...	66.0	
October ...	1.20 ...	78 ...	70 ...	84 ...	61 ...	58.5	
November...	1.91 ...	81 ...	72 ...	86 ...	63 ...	52.6	
December ...	2.38 ...	84 ...	75 ...	90 ...	67 ...	60.2	
Total ...	21.17	81 ...	72 ...	93 ...	58 ...	59.4	

From the foregoing it will be seen that drought conditions prevailed through the greater part of the year with temperatures generally high.

Research Work

A.—Tobacco Breeding

1. SELECTION WORK

Selection work was confined to those strains which have been proved to possess a more desirable flavour than the present popular variety Amarello. Owing to the unfavourable season which resulted in the majority of plants being small very few plants were selected for future work.

2. CROSSING

Progeny from crosses made in the previous year were planted out. These crosses comprised two series, viz.—

(1) Crosses between different varieties.

(2) Crosses between colchicine treated plants and Bonanza and Amarello.

In series 1 twelve crosses were made with the primary object of ascertaining the compatibility of varieties for this work. In all germination was extremely slow as was subsequent growth. The crosses made and the number of seedlings planted out were—

	<i>No. of seedlings</i>
1. Charles' Special x White Stem Pearl ...	30
2. Bonanza x Gold Leaf ...	60
3. White Stem Pearl x Harrison's Special ...	30
4. White Stem Pearl x Cash ...	30
5. White Stem Mammoth x Cash ...	30
6. White Stem Pearl x Yellow Pryor ...	30
7. White Stem Pearl x Amarello ...	38
8. White Stem Mammoth x Amarello ...	4
9. Bonanza x Amarello ...	60
10. White Stem Pearl x Yellow Mammoth ...	30
11. White Stem Mammoth x Bonanza ...	30
12. Harrison's Special x White Stem Willow Leaf ...	—

Incompatibility was in evidence in all the crosses, excepting numbers 4, 9, 10 and 11, such plants as were obtained being of reduced vigour, slow growth and with small undesirable leaves; no selections or back crosses were made with any other plants.

In the crosses numbers 9 and 10 complete dominance of the male parent was evident whilst in numbers 4 and 11 there was incomplete dominance. Selections were made in these numbers and back crossing to both parents carried out. The cross between Bonanza and Amarello was the most promising of all and displayed considerable hybrid vigour. The leaves were large, of good texture and curing properties combined with an improved flavour.

In series 2 twenty-three crosses were made of which eighteen were crosses between sterile colchicine-treated plants and the control and these will be dealt with in the special report on colchicine trials. The remaining five consisted of crosses between colchicine-treated plants and the varieties Amarello, Maryland and Greenwood: three with the first named variety and one each with the last two. In the case of the last two named varieties no seedlings were obtained. In the case of the Amarello crosses all the plants were of large size, vigorous and with Amarello vegetative characteristics completely dominant. Selections were made and back crosses to both parents carried out.

From the work already done it would appear that the most promising varieties for crossing work are: Amarello, Bonanza, White Stem Pearl and Cash. During the year 36 crosses were made; these consisted of 31 back crosses and but 5 inter-variety crosses.

3. COLCHICINE TRIALS

During the year seedlings from 29 selected plants from the previous year's trial were planted in progeny plots. In all plots there was considerable segregation and in some instances the progeny bore no resemblance whatsoever to the parent. A further 43 selections were made to test F₂ generation, and in all cases a photograph and a careful description of the plant were taken. These trials will be dealt with more fully in a further report on the use of colchicine in tobacco breeding.

A fresh experiment was commenced with the use of colchicine on similar lines to the previous year's using the varieties Amarello and Charlie's Special. Unfortunately there were far too many rogues in both control and treated plots to allow of any reliable conclusions being drawn. A few plants were however selected, photographed and described and seed obtained for testing F₁ generation from the treated plants. This experiment will be dealt with more fully in the special report on colchicine trials.

4. TRIALS WITH SELECTED STRAINS

(a) A field trial was carried out to test three selected strains of each of the varieties: Bonanza, Jamaica Wrapper and Virginia Bright. The trial was conducted in randomised plots of 1/40th acre with three replications. Yields were generally low owing to drought conditions and an attack of black shank disease. An analysis of the results showed no general significant difference between varieties or strains in yields or grade index.

(b) Two further field trials were carried out with one selected strain of the following varieties: Yellow Mammoth, White Mammoth, Cash, Charlie's Special and Yellow Pryor in one trial, and White Stem Mammoth, White Stem Pearl, White Stem Orinoco and White Stem Willow Leaf in the other trials. Both trials suffered so severely from black shank disease as to render results unreliable.

B.—Fertilizer and Field Experiments

1. SPACING AND VARIETY TRIAL

A spacing and variety trial to test 3 varieties of tobacco—Bonanza, Jamaica Wrapper and White Mammoth—at 6 spacings, viz.—

(a) 3' × 1' 6"

(d) 4' × 1' 1½"

(b) 3' × 2'

(e) 4' × 1' 6"

(c) 3' × 3'

(f) 4' × 2' 3"

was carried out in a partially confounded incomplete block design and the results have been forwarded to Rothamsted for analysis.

2. FERTILIZER TABLET EXPERIMENT

An experiment was carried out to test the application of fertilizer in tablet form as against the application in granular form. As in the previous year there was no significant difference in so far as yields and grade index were concerned. The fertilizer in tablet form gave as good results as the granular mixtures. There is no doubt that the use of fertilizer in tablet form results in considerable saving in time and labour in applying fertilizer and also ensures a more equitable distribution.

3. FERTILIZER APPLICATION EXPERIMENT

For the third year in succession an experiment to test the time and method of application of fertilizer was carried out. Three times were tested viz. —

- (1) All applied at time of planting.
- (2) Half applied at time of planting and half three weeks later.
- (3) One-third applied at time of planting, one-third two weeks later, remaining one-third one month later: and two methods, viz. —

(a) Applied around the plant

(b) Broadcast in the row.

From an analysis of the results given hereunder it can be concluded that method (1) is significantly better than method 2, and that 3 applications are significantly better than either one or two.

YIELD IN KILOS PER ACRE ± 14

		Times of application			Mean
Method		1		2	± 7
(1)	...	194	188	222	201
(2)	...	160	165	209	176
Mean ± 8 ...		177	176	212	183

C.—Seed Selection and Supply

Special progeny plots were planted with selected strains for obtaining seed for planters, which seed is distributed through the agency of the Tobacco Board: the favoured varieties being Bonanza, Jamaica Wrapper, Virginia Bright and White Mammoth.

Owing to adverse reports on the type of supposed Amarello being cultivated by a large number of growers, the Tobacco Board decided to control the entire seed supply for both flue curers and air curers. Accordingly an area of 3 acres was planted at the Research Station under a specially selected Amarello strain and sufficient seed has been obtained for supply to growers for the next crop. Selection also has been carried out for further seed production.

D.—Rotation Crops

1. MAIZE

The spacing and fertilizer experiment referred to in the last annual report was reaped during the year under review. The experiment was designed to test 3 levels of nitrogen, 3 levels of phosphate, and 2 spacings. The experiment was carried out in a partially confounded incomplete block design with two replications.

The treatments being—

N.0	No nitrogen.	P.0	No phosphate.
N.1	10 kilos nitrogen per acre	P.1	20 kilos phosphate per acre
N.2	20 " " " "	P.2	40 " " " "
S.1	Spacing: 3 feet by 1 foot		
S.2	Spacing: 3 feet by 2 feet.		

The analysed results were:

YIELD IN KILOS PER ACRE $\pm$ 92				
	N.0	N.1	N.2	Spacing Mean $\pm$ 5.1
S.1 ...	1464	1572	1753	1596
S.2 ...	982	1034	1131	1049
Mean $\pm$ 65 ...	1323	1303	1442	1323
	P.0	P.1	P.2	Spacing Mean $\pm$ 5.3
S.1 ...	1566	1651	1572	1596
S.2 ...	1063	1045	1039	1049
Mean $\pm$ 65 ...	1315	1348	1306	1323

The conclusions to be drawn from the experiment are that the yields from the close spacing—3 feet by 1 foot—are significantly higher under all fertilizer treatments. There has been an increase in yields from application of nitrogen though this response is not generally significant, the response to the double dressing of nitrogen under the close spacing was significantly higher than to the single dressing and no nitrogen. There was no response to the applications of phosphate and there were no interaction effects.

2. OTHER CROPS

No experiments or trials were carried out with any other crops. Areas were however planted under sweet potatoes and embers for supply of planting material.

E.—General

1. WINDBREAKS

The planting of trees was continued, for a continuation of the windbreaks, as opportunities offered. The trees planted being Filao and Cassia Florida.

2. STAFF

Mr. Avice du Buisson, Scientific Assistant, was called up for military service in January, 1942.

Miss F. Masson was appointed as a temporary clerical assistant in September, 1942.

The writer continued to act as Secretary, Tobacco Board, and Manager, Government Tobacco Warehouse.

G. CORBETT,
Government Tobacco Officer.

Veterinary Division

Head I

A.—Disease Control

(1) FIELD OPERATIONS

Tuberculosis and trypanosomiasis were the two contagious diseases which prevailed during the year and received the special attention of the Veterinary Division.

Tuberculosis: Animals tested	...	4,797
Animals reacted	...	296: i.e. 6 per cent.

Practically all animals tested belonged to herds on estates. Every endeavour is made to ensure that all the reactors are sent to the butcher. In some special circumstances, however, reactors have had to be kept and great care was then taken for their proper isolation.

Trypanosomiasis: Blood smears examined	...	9,024	
Positive cases recorded	...	15	1 equine evansi 10 bovine evansi 4 bovine vivax.

One bovine died during treatment and the 14 others recovered.

(2) RESEARCH OPERATIONS

Abortion on cows.—Four cases of abortion were recorded during the year on cows of the Government Dairy as against 7 in 1941 and 20 in 1940. The anti-streptococcic vaccine was applied with satisfactory results.

B.—Animal Husbandry

(1) FIELD OPERATIONS

Imported sires of the Charolais and Africander breeds have been severely reduced in number during the year through the prevalence of tuberculosis in herds: 3 Charolais and 1 Africander reacted to the tuberculin test, two of them were destroyed and the two others will suffer the same fate shortly.

(2) RESEARCH OPERATIONS

Breeding operations are in progress at the Palmar Experimental Breeding Centre, where attention is now limited to the Africander breed and the local breed. The Charolais breed is only represented by a purebred cow locally born and her purebred heifer calf, the other imported individuals of the breed having died.

C.—Improvement of Marketing of Animals and Animal Products

Animals imported for meat purposes:—

From Madagascar	...	910 bullocks.
From Rodrigues	...	263 bullocks.
"	...	1,157 pigs.
"	...	627 sheep.
"	...	2,499 goats.

Slaughter houses of the Colony were visited by the Veterinary Officers on 30 occasions.

1,512 animals of the milch breed have been authorised to be slaughtered, including 276 bull-calves.

D.—Veterinary Education

Lectures were delivered to students of the 1st, 2nd and 3rd year by the Veterinary Officer and his Assistant. Members of the Veterinary Staff were also seconded for Food Production Scheme.

Head II

Quarantine

RÉDUII GOVERNMENT KENNELS

6 dogs imported during the year were placed under 6 months observation: 1 died during the period of quarantine from epilepsy.

FORT WILLIAM QUARANTINE STATION

701 Madagascar bullocks imported from Diégo Suarez in August and September were segregated at Fort William until slaughtered.

General

The Veterinary Officer proceeded to Madagascar twice during the year on special mission. He ascertained, *inter alia*, that the sanitary conditions of animals in Vohémar had not changed since the war started and, consequently, when 215 bullocks were imported from Vohémar in November, 1942, they were not subjected to quarantine measures.

F. E. LIONNET,

Veterinary Officer

Government Dairy

Yield of Milk

The amount of milk produced during the year was distributed as follows—

	1942	1941
	<i>litres</i>	<i>litres</i>
Supplied to hospitals ...	18,668	10,067
Supplied to the public ...	67,702	67,726
Fed to calves ...	4,779	5,688
Samples for control ...	450	607
Total ...	86,594	73,888

Births

28 calves were born during the year: 15 males and 13 females.

Deaths

One heifer calf died at the Royal Botanical Gardens from colics: 1 creole cow died from colics and another from inversion of uterus.

Sales

18 calves were sold to breeders: 13 males and 5 females. In addition 14 cows which had become unproductive owing to old age, blind teats or sterility, and 1 heifer calf whose legs had been accidentally broken through slipping in stable, were given to the butcher in return for 12 tuberculin tested milch cows of the local breed.

Abortion

Four cases were recorded during the year as against 7 in 1941.

Tuberculosis

One cow showed clinical symptoms of tuberculosis and 3 others reacted to the tuberculin test which was applied to the whole herd. 3 of these 4 reactors have been given to a butcher for slaughtering at Curepipe Abattoir in return for three tuberculin tested milch cows of the local breed.

The fourth reactor being heavily in-calf will be slaughtered after calving.

YVES LEBÉURE,

Officer in charge of Dairy.

Rodriguez

Weather conditions have been unfavourable due chiefly to the irregular distribution of rainfall. The early crops of maize gave reduced yields, streak disease being responsible for a certain amount of loss. Extensive plantings made in August and September, in order to produce a late crop of maize, was a failure owing to drought. Sweet potatoes were available during a few months only. The area under maize was limited owing to scarcity of planting material. Cultivation of beans, garlic and onions increased considerably owing to high prices paid for these products. In some localities short crops were obtained. Tobacco was grown on a limited scale and did not do well.

The pastures in the Cattle Walk deteriorated rapidly during the drought. Authorisation was granted to leave the cattle unpened at night and grazing was allowed in certain areas outside the Cattle Walk. Animal diseases were not important. Good prices were obtained for cattle, sheep, goats, pigs and poultry.

No steamer called in December; all the produce prepared for export could not be shipped to Mauritius.

Work of the Agricultural Division

The Experimental Station continued to foster the raising of essential food crops. Plantations of manioc and yams have been extended in order to obtain sufficient planting material to carry out various mixed planting experiments. Many other economic plants have been raised and were supplied to farmers. *Citrus* sp. raised at *Vauquart* have done well except a certain number of saplings which died during the dry weather. *Lavania Ledebgei* and *Lavania Verschaffeltii* were planted in some numbers at Oyster Bay.

Control of Pest and Diseases

Red Ant.—Cyanogas has not proved very effective in the control of red ants. The pest has spread around Port Mathurin. Dieldel emission has been used with promising results.

Citrus Canker.—Close attention was paid to the control of the disease. It is encouraging to note that the persistent efforts made appear to have given good results. The disease has not made any progress this year. New regulations prohibiting the introduction of plants, fruits and cuttings of the citrus order came into force in January, 1942.

Agricultural Instruction

Soil conservation works were started at Oyster Bay, Papayes, and practical demonstrations were made on lands of members of Co-operative Credit Societies at Patate Théophile, Tréfles, and Decidé. The plot holders also gave some assistance.

Many holdings were visited throughout the year.

Windbreaks established on the ridge of a hill at Citrons and alongside the line of Cattle Walk from Baie Malgache to La Ferme and from Canne Paul to Parc Martin were extensively damaged by fire.

Prize Holding Scheme.—37 farmers entered the competition. 18 prizes were awarded.

School Garden.—At the request of the Magistrate, tools and wire netting were ordered from Mauritius for the establishment of school gardens. The articles received were handed over to the Head Teacher of the R.C. Aided Schools. The Magistrate has requested the Inspector, Co-operative Credit Societies, to control the work.

Stock Farm

The buildings, fences and troughs were maintained in good condition. 2 donkeys, 7 pigs, 15 turkeys and 2 chickens were sold locally for Rs. 440.50. One donkey was shipped to Mauritius.

Improvement of Pasture

Destruction of *Lantana camara* on wide areas of the Cattle Walk was carried out. Plantations of *Leucaena glauca*, *Paspalum dilatatum*, *Chloris gayana* and *Stenotaphrum dimidiatum* have been made in different localities.

The dams and troughs were repaired. A new drinking trough has been built at Grenade.

Food Production

The measures taken to enforce planting of food crops on all lands by the end of January were not very effective due to adverse weather conditions and to proper supervision. Some farmers of the western localities were prosecuted and fined for having failed to plant their lands in time.

The total area of new lands granted for agricultural purposes amounted to 309 acres.

Miscellaneous

Mr. E. Rochecouste, the Experiment Station Overseer, left for Mauritius in February, and was replaced by Mr. L. G. Ducasse.

Stockman D. Levêque proceeded to Mauritius on sick leave in October.

RENÉ JAUFFRET,
Agricultural Superintendent.

PART III

• Legislation

The following Proclamations and Government Notices were passed during the year:—

Proclamation No. 22.—To proclaim the price to be paid for "Uba de Riche Fond" varieties of sugar cane in the areas specified in paragraph (1) of Proclamation No. 18 of the 22nd July, 1939.

Proclamation No. 23.—To proclaim the price to be paid for "Uba de Riche Fond" varieties of sugar cane in the areas specified in paragraph (1) of Proclamation No. 20 of the 17th May, 1940.

Government Notice No. 12.—Regulations made by the Governor in Executive Council under Articles 2 and 3 of Ordinance No. 3 of 1881 to provide for the protection of the produce of Rodrigues.

Government Notice No. 92.—Regulations made by the Governor in Executive Council under sections 12 and 28 of the Sale of Canes (Control) Ordinance 1941.

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